

## ABSTRACT

The invention relates to the field of wireless communications, more particularly to a method of and device for automatic gain control (AGC) incorporating digitally controlled variable gain amplifiers (VGAs). The invention provides an AGC circuit comprising an I/Q baseband strip comprising multiple AGC stages wherein each of the AGC stages comprises: respective I and Q VGAs; a detector for detecting respective I and Q output signals received from the respective I and Q VGAs; an analogue to digital converter (ADC) for converting the detected I and Q output signals; and a digital engine for adjusting the respective I and Q VGAs for differences between the detected I and Q output signals and a reference signal. The use of staggered AGCs incorporating respective I and Q VGAs means that the total dynamic range is split between n-stages, thereby allowing for reduced gain requirements in the VGAs. Additionally, the use of digital control for setting the VGA gains means that analogue variations and I/Q gain imbalances are reduced. Additionally, the use of multiple update rates or magnitudes in the VGA control improves the dynamic settling time.